BANYAN TREE

# Panchagavya

## a manual

Dr. K. Natarajan

# Panchagavya

## A manual

Dr. K. Natarajan

*Panchagavya* : A manual

By Dr. K. Natarajan

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# Introduction

by Ms Maneka Gandhi

I am delighted to be writing this small introduction to Dr K Natarajan's manual on *Panchagavya.*

Dr. Natarajan has studied the effects of *panchagavya* for decades and has used it across India to treat plants, animals and human beings. He says that the basic preparation should be fine tuned for maximum efficiency. He has already won the prestigious Srishti award for his bio pesticide (ease of preparation and lack of side effects) and has made excellent immunity boosters for cattle. He has two herbal medicines for diabetes and arthritis. *Panchagavya* has come a long way from 1998, when it was innovated by scientists for the first time. Now students have their PhD and M.Phil for scientific research on it. Thousands of farmers use it daily. The manual is extremely interesting. It not only gives detail of what *panchagavya* is, and how to make it, but it gives the names and details of how it is used in different places all over India, and empirical evidence on the difference it makes immediately to the soil and to the body.

India has gone through a deeply troubled phase in agriculture. For centuries, we ate organic, good, seasonal food and fruit. Then, in 1960 the government was enamoured of the idea of doubling everything overnight. In the "Green Revolution" pesticides and chemicals were introduced and pushed through all the publicity media and scientific institutions. In ten years most of the food we ate had disappeared and was replaced by

standardized, low level, unhealthy grains.

As the years went on the ground became soaked with chemicals and urea, and had become so thirsty that we started overusing water, and then electricity, simply for irrigation. By 2000 India realized that, while we were importing millions of tonnes of poisons to put on the land, nothing had increased except cancer. The Green Revolution had failed totally and farmers were in despair. Very slowly, farmers started to go back to what they knew best – organic farming. Tiny steps were taken to replace chemical fertilizers, pesticides and fungicides, with organic manure. But nothing was available to replace growth promoting hormones and immunity boosters, and to bring sustained higher productivity. So farmers, and some scientists, started experimenting with medicines mentioned in the *Vrikshayurveda,* and *panchagavya* was the result.

According to Dr Natarajan *panchagavya* is an elixir of many microorganisms, bacteria, fungi, proteins, carbohydrates, fats, amino acids, vitamins, enzymes, unknown growth promoting agents, micronutrients, antioxidants and immunity enhancers. When taken orally by animals it stimulates the immune system and produces antibodies, acting like a vaccine. It is especially helpful in digesting and curing constipation.

Ms Maneka Gandhi

# Preface

From my early childhood, I was attracted towards nature and its mysteries. I was brought up in a remote village with natural surroundings unaffected by modern development, which ensured my total love for nature. During my growing years, my association with *sadhus,yogis* and native healers created a thirst to seek inner bliss and a natural life. The search ended after many frustrated years, when in 1972, during my college days, I met my Master Swami Jeevananda. He initiated me into the Path of Light known as Siva Rajayoga meditation of the ancient *Siddhas*. After sincere and persistent practice for 21 long years, my Guruji conferred masterhood upon me in 1993. From that moment, my entire perception of the world changed. I understood the cosmic unity in everything and now consider even a tiny dust particle as holy as the sun.

During my medical practice and interaction with people, animals and plants, I came to understand the delicate role of the *Panchabhootas* (the five elements of nature, i.e., Earth, Water, Fire, Air and Space) and the *Tridoshas*, viz., *Vadha* (air), *Pitha* (fire) and *Kapha* (phlegm) in maintaining the health of all the living creatures of the earth. Each element must be in proper proportion and also in harmony with nature. Any disequilibrium in the natural ratio of the five elements will lead to disease in plants, animals and human beings. Our ancient forefathers knew this secret. Based on these principles, they created the medical system called *Ayurveda* for human beings,*Mrigayurveda* for animals and *Vrikshayurveda* for plants.

By the grace of Divine Will, I came face-to-face with the reality of *panchagavya* during a Maha Sivarathri day in the year 1998. After that momentous encounter, I delved deep into the inner core of *panchagavya* and formulated a modified version of *panchagavya* by adding four more natural ingredients for use with plants, animals and human beings.

There was no looking back from that Maha Sivarathri day which completely turned our focus on how to transform chemical agriculture into organic farming, and ensure better veterinary care and human health care with the use of *panchagavya*.

Every day our organic farmers find new uses for *panchagavya* and the preparation is fine-tuned for maximum efficacy. The simple village folk not only use it to treat plants, but also animals and human beings for various ailments with successful results. Even HIV-positive people respond well to *panchagavya* therapy.

I have also formulated a bio-pesticide, which bagged the SRISTI award for its ease of preparation, economy, effectiveness and lack of side effects. Thereafter I was also successful in formulating a herbal antibiotic and herbal immunity booster for cattle. Both of them have revolutionized the veterinary health care system, and even the National Dairy Development Board (NDDB) has initiated trials with the above products. There is no equivalent medicine in the modern veterinary health care system to match the efficacy of these herbal formulations.

I have also prepared two herbal medicines for the common human diseases of *diabetes mellitus* and arthritis. There is no modern medicine to cure *diabetes mellitus* and arthritis. But our herbal medicines, when used along with*panchagavya*, provide almost total relief.

All the above formulations are easy to prepare using locally available ingredients. They are highly effective and economical. We conduct free training programs to teach farmers how to prepare and use the above formulations, and also conduct demonstrations of other organic farming methods, ethno-veterinary medicine and herbal treatments for human diseases through the Rural Community Action Centre (RCAC).

Now our message has gone far and wide due to the tireless efforts of organic farmers like Dr. G. Nammalvar; Shri. P. Vivekanandan, SEVA; Smt. K. Vijayalakshmi, CIKS; Prof. Dr. E. Vadivel, Tamil Nadu Agricultural University; the organic farming movement as a whole; and all friends and

lovers of organic farming. I thank all those who support our movement for organic farming.

May everyone become self-conscious, health-conscious and eco-conscious to usher in a new era with a harmonious and pleasant life style!

Dr. K. Natarajan MBBS

# Preface to the second edition

This book, *Panchagavya: A manual*, first published in 2003 by Other India Press, was so popular, it was reprinted in 2004. It not only reached all states of India but the shores of other countries as well. *Panchagavya* was first published in Tamil in the year 2000 as a small book. The revised edition was published in 2002. Up to 2006, altogether five revised Tamil editions were published. Each time more and more experiences of farmers and scientists were added. The booklet became so popular it sold more than one lakh copies in Tamil.

The English edition was translated into many Indian languages like Telugu, Marathi, and Kannada and well received by organic farmers everywhere with enthusiasm. After widespread use in all crops, in all soils, and in all climatic conditions, *panchagavya*'s beneficial effects were appreciated by one and all. Now it is widely used on cattle farms, poultry sheds, piggery farms, inland fisheries, aquaculture, rabbit breeding farms, Japanese quail breeding farms and for pets like dogs. Its curative effects and immunity boosting capacity were recorded and approved by veterinary scientists.

Many ayurvedic and allopathic physicians are using *panchagavya* for all human diseases. They say that it itself cures many diseases like cancer and diabetes and also potentiates the actions of other drugs as well.

*Panchagavya* was widely tested in many labs across the country and trials were conducted on many crops by agricultural scientists. The Tamilnadu Agricultural University especially has, under the guidance of Dr. E. Vadivel, Director of Extension Education and Dr. K. Ramasamy, Director of Center for Plant Molecular Biology, gone deep into *panchagavya* upto the molecular level. They have conducted many trials in all crops. They have documented, published, and presented many scientific papers in Indian and international organic farming seminars. One scientific paper on *panchagavya* presented at the 'International Seminar on Vedic Agriculture' at Delhi was well received and evoked much interest from other scientists. Now the TNAU is manufacturing *panchagavya* and selling it under the brand name 'TNAU *Panchagavya*' for Rs. 40 per litre.

Since *panchagavya* was innovated in the year 1998, it has seen many modifications, many refinements and found many users. In the last 10 years it has gathered many valuable and priceless experiences from many farmers, scientists, vets and physicians, across the country. It has indeed became an important, irreplaceable and standard input in organic agriculture. It has revolutionized organic farming to attain the peaks in quality and production.

The vast experiences were not included in this book for the last five years, due to my laziness. Every time Claude Alvares met me or talked with me over the phone, he kept urging me to write a new edition to include the latest developments in *panchagavya*. The experience of our farmers and scientists are so vast and varied. I have tried to include only the important experiences. In the next edition I shall try to include the experiences of other farmers left out in this edition.

Many students have got their Ph.D. and M.Phil. in many universities with*panchagavya* as their topic for research and presentation of scientific papers.

I profusely thank Claude Alvares for prodding me frequently to write this second edition. I sincerely thank all loving hearts who use, appreciate and disseminate the message of *panchagavya* to the masses. I pray mother nature to give health, wealth, prosperity, higher consciousness and bliss to each one of you!

January 2008

Dr. K. Natarajan MBBS

# 1 What is *Panchagavya*?

## Introduction

Ancient wisdom is a treasure house of knowledge systems to safeguard the health and well-being of humankind, animals and plants. *Vrikshayurveda* is one such knowledge system, advocating agriculture with the use of natural inputs. It promotes a system which synchronizes all agricultural operations with natural forces emanating out of the *Panchabhootas*, viz. Earth, Water, Air, Fire and Space.

When human beings, animals and plants were in perfect harmony, everything was wholesome and no remedial, correctional and improvement measures were required, as there was no ailment. Consequent to the domination and exploitation of flora and fauna by humans, and deviation from a natural life-style, problems cropped up due to forced imbalances in natural elements, and well-being. Agriculture was no exception. Thus, 'Health Care' for soil, plant, micro- and macro-organisms as well as humans has deteriorated over time; chemical agriculture has worsened the scenario and health hazards have increased exponentially.

## Historical Background

Masanobu Fukuoka, author of the *One Straw Revolution* was one of the first to voice these concerns across the world and sensitize the minds of thoughtful scholars. Rachel Carson, the author of *Silent Spring*, created a powerful wave against the invasion of chemicals into agriculture, the environment and the human body.

Notwithstanding such voices of grave concern, chemical agriculture continued over the decades to poison the land, water and air. As a result, many crop laboratories of the world, reputed international figures and NGOs extended their support to organic farming. A green movement, which championed the cause of organic agriculture during the late eighties, arose in the West.

Theories and concepts of organic agriculture were developed and popularized under different names, viz., organic agriculture, green culture, natural farming, and do-nothing farming, etc. The enlightened public started demanding toxin-free food products. The market demand for organic produce gave further momentum to the organic movement, and eventually sporadic attempts have been made to detoxify the land, dispense with chemical fertilizers, pesticides, fungicides and herbicides, and grow crops organically. There was no organic substitute for these chemicals, yet the cause of organic agriculture picked up momentum.

Organic manure replaced chemical fertilizers, herbal extracts replaced pesticides and fungicides, but nothing was available to replace growth promoting hormones and immunity boosters for plants. The organic system was imperfect and continued to be incomplete for want of an input to replace growth-promoting hormones and immunity boosters, to maximize the efficiency of cultivated crops and coordinate the process leading to sustained higher productivity.

Indian knowledge systems have the answer to many problems of humanity. Our forefathers had propounded and practised those systems directed towards attainment of a healthy body and sound mind. But humanity was lured by chemical technology and it abandoned the ancient wisdom generated during the past. *Vrikshayurveda* is a treasure trove of information on agriculture and as such could lend support to organic agriculture. *Panchagavya* has been one such piece of wisdom, meant to safeguard all the human beings, animals, plants and microorganisms that dwell on the earth's surface.

## Original Utility

*Panchagavya* consists of five products from the cow: dung, urine, milk, curd and ghee. When suitably mixed and used these have miraculous effects. *Panchagavya* is prepared and used when performing rituals for forefathers at a particular lunar phase; when the person or the house is to be purified after the death of someone in the family; when a housewarming ceremony is performed in a new house to ward off evil forces; on the day a young priest is administered the *Gayatri mantra* with sacred thread; and on Maha Sivarathri day, the day of Lord Siva.

All these give an impression that *panchagavya* is used to establish a link between living and dead, seen and unseen, physical and para-physical, and earthly and heavenly forces. Such a high esteem and status for a simple product from a common animal may sound paradoxical, but when the truth is unravelled, one is overcome with wonder.

## Need for equilibrium of basic elements

Earthly beings are made up of five basic elements, viz. Earth, Water, Fire, Air and space which are at non-equilibrium within themselves and also with each other. This is the reason for the existence of beings with all kinds of inequalities. Indian wisdom says that these basic units are almost at equilibrium in the cells of a cow. This is why the cow has been accepted as near divine in Indian culture, and worshipped as God from time immemorial. It is called *Kamadhenu*, the giver of all riches to humanity.

According to ancient texts, all beneficent forces like gods, *devas*, sages, *rishis* and divine spirits are said to dwell in the body of the cow. The products from the cow have the ability to bring in the flow of cosmic energy, whenever and in whatever form they are used. Cosmic energy – even a speck of it – when made to pass through a living system, transforms the living being to wholesomeness, removing the imbalances in its physical, chemical, biological and physiological aspects, and harmonizes the basic elements which results in revitalization of the growth process.

# 2 Panchagavya for farmers

I was once offered a *tirtha* (*prasad*) made of *panchagavya* while I prayed at the Siva Temple, Kodumudi, on a Maha Sivarathri day. Out of curiosity, I, the physician, asked the priest, 'Why do you consider *panchagavya* divine and offer it as *prasad*?' The priest replied, '*Panchagavya* cures the pre-existing ailments and protects against all ailments to come.' Intrigued by this wholesome answer, the physician continued to ponder over the logic and rationale of using animal excreta and products, after fermentation, as a remedy for human ailments.

My participation in an international conference on medicinal plants held at Bangalore in 1998, and perusal of the books *One Straw Revolution* by Masanobu Fukuoka and *The Organic Farming Source Book* by Claude Alvares led me to experiment with *panchagavya* on plants. This ignited a chain of experiments conducted over three years, to standardize the present form of *panchagavya*, the single organic input which can act as a growth-promoter and immunity booster. The product has revolutionized and revitalized organic agriculture in Tamil Nadu, and it is poised to sweep the whole world in days to come.

## Improving the *Panchagavya* recipe

Sugar base

Sugar accelerates the fermentation process. Initially honey was added along with*panchagavya*. Considering the cost of honey, jaggery was added instead. However, since jaggery contains chemical ingredients, sugarcane juice was substituted to accelerate the fermentation process. Bananas were also added to act as a substrate for microorganisms.

Bad odour and toddy

The*panchagavya* was emitting a bad smell due to the fermentation process. Toddy was experimented with. Various quantities were added as an additional ingredient and this contained the bad odour to a great extent and also enhanced the fermentation process.

Tender coconut water

Speed of fermentation was slow, and experiments were made with tender coconut water. The tender coconut water not only accelerated the fermentation process but also activated the growth of meristem at a faster rate, since it contains cytokinin.

Table 1: Ingredients for making *panchagavya*

| | | |
|---|---|---|
| 1 | Fresh cow dung | 5 kg |
| 2 | Cow urine | 3 litres |
| 3 | Cow milk | 2 litres |
| 4 | Cow curd | 2 litres |
| 5 | Cow ghee | 1/2 kg |
| 6 | Sugarcane juice | 3 litres |
| 7 | Tender coconut water | 3 litres |
| 8 | Banana (ripe) | 12 nos |
| 9 | Toddy or grape juice | 2 litres |

Thus, the latest form of *panchagavya*, suited to various agricultural and horticultural crops, has been standardized as given in table 1. The cost of production is around Rs.25/litre. If the volume is more and the farmers use their own cow's products, the cost can be further reduced. By using the

quantity of ingredients specified in the table, one can obtain approximately 20 litres of *panchagavya*.

## Mode of preparation

For preparing *panchagavya*, we need a wide mouthed mud pot, concrete tank or plastic cans. Metal containers should not be used. First put the fresh cow dung and cow's ghee into the container and mix it thoroughly twice daily for 3 days. On the fourth day, add the rest of the ingredients and stir it twice daily for 15 days.

The*panchagavya* stock solution will be ready after the 18th day. It should be kept in the shade and covered with a wire mesh or plastic mosquito net to prevent houseflies from laying eggs and the formation of maggots (worms) in the solution.

If sugarcane juice is not available, add 500 grams of jaggery dissolved in 3 litres of water. Likewise, if toddy is not available, add 100 grams of yeast powder and 100 grams of jaggery to 2 litres of warm water. After 30 minutes, add this solution to replace toddy in *panchagavya*.

Another method is, you take two litres of tender coconut water and keep this in a closed plastic container for 10 days. After fermentation, it becomes toddy. This solution can be prepared beforehand and used to replace toddy. When stirred twice daily, the *panchagavya* solution can be kept for six months without any deterioration in its quality. Whenever the solution becomes thick due to evaporation of water over a long period, suitable quantity of water can be added to keep it in a liquid state.

## Physico-chemical and biological properties

*Panchagavya* contains macro nutrients like NPK, 13 essential micronutrients necessary for the plants, many vitamins, essential amino acids, growth promoting factors like IAA, GA, and beneficial microorganisms like azotobacter, phospho bacteria and pseudomonas in abundant numbers. It also contains some useful fungi and actinomycetes.

Table 2: As analysed at Tamil Nadu Agricultural University

| Properties/ Composition | Days after preparation (days) | | | | Mean composition on 15th day *out of 6 Preparations |
|---|---|---|---|---|---|
| | 0 | 7 | 10 | 15 | |
| pH | 5.65 | 3.92 | 4.69 | 5.18 | 5.12 |
| EC (dsm-1) | 9.30 | 11.20 | 10.4 | 8.2 | 8.2 |
| Available N/p pm | - | 298 | 376 | 485 | 492 |
| Available P/ppm | - | 645 | 760 | 865 | 915 |
| Available K/ppm | - | 940 | 1540 | 1648 | 1635 |
| Organic carbon (%) | - | 0.49 | 0.53 | 0.61 | 0.6 |
| IAA ppm | - | 10.8 | 11.8 | 12.1 | 13.5 |
| GA ppm | - | 4.9 | 5.8 | 5.2 | 5.6 |
| Total sugars p pm | - | 345 | 386 | 586 | 575 |
| Bacteria (x10/6) | 0.22 | 5.2 | 6.4 | 94 | 92x10^6 |
| Fungi | 3x10^2 | 4.5x10^3 | 4.5x10^4 | 46x10^4 | 48x10^4 |
| Actinomycetes | 17x10^1 | 20x10^1 | 20x10^1 | 19x10^1 | 21x10^1 |

The beneficial microorganisms present in the *panchagavya* isolated by Dr. A. R. Soliyappan at the Central Bio Control Laboratory, Chengalpattu are given in table 3.

Table 3: Microorganisms per gram of *panchagavya*

| | |
|---|---|
| Nitrogen-fixing azospirillum | 10x10 |
| Nitrogen-fixing azotobacter | 10x9 |
| Phosphorus solubilising phospho bacteria | 10x7 |
| Immunity-enhancing pseudomonas | 10x6 |

*Panchagavya* contains all the essential macro and micro nutrients required for the plants as analyzed at the SGS labs, Chennai as given in table 4.

Table 4: Chemical analyses at SGS Labs, Chennai

| | |
|---|---|
| pH | 6.02 |
| EC | 3.02 |
| TDS | 3.4 % W/w |
| Nitrogen | 6650 ppm |
| Phosphorus | 4310 ppm |
| Potassium | 5200 ppm |
| Sodium | 1600 ppm |
| Calcium | 1000 ppm |
| Magnesium | 840 ppm |
| Chloride | 248.5 ppm |
| Boron | 0.442 ppm |
| Manganese | 14.8 ppm |
| Iron | 142.5 ppm |
| Zinc | 82 ppm |

| | |
|---|---|
| Copper | 58 ppm |
| Sulphur | 0.56 ppm |

## GC-MS analysis of *panchagavya* at TNAU labs

Table 5: Fatty acids, alkanes, alconol & alcohols

| Fatty acids | Alkanes | Alconol & alcohols |
|---|---|---|
| 1. Oleic acid | Decane | Heptanol |
| 2. Palmitic acid | Octane | Tetracosanol |
| 3. Myristic | Heptane | Hexadecanol |
| 4. Deconore | Hexadecane | Octadeconol |
| 5. Deconoic | Oridecane | Methanol, propanol, butanol & ethanol |
| 6. Octanoic | Eicosine | |
| 7. Hexanoic | | |
| 8. Octadeconoic | | |
| 9. Tetradeconoic | | |
| 10. Acetic, propionic, butyric, caproic and valeric acids | | |

## Possible correlation of the above compounds with plant metabolism

**Hexanal**: Short chain aldehydes such as hexanal and their derivatives are formed from lipids through sequential action of lipid hydrolyzing, lipoxygenase and fatty acid hydroperoxidase lyase activities. They are reported to

have bactericidal and fungicidal activities. Aldehydes also induce defense response against herbivores.

**Compounds in oxylipin pathway**: The Jasmonates (epoxy and hydroxyl fatty acids, divinyl ether fatty acids and short chain aldehydes) are involved in hypersensitive resistance response of plants infected by pathogens.

**Dodecanoic acid**: A crystalline fatty acid found as glycerides in many vegetable oils and used in insecticide production.

**Oleic acid**: A plant metabolic compound that helps embryo development (seed development/seed filling).

**Myristic acid**: They function in single transduction pathways and vesicular trafficking and also play a role in cell elongation.

**Octadecanoic acid**: They are mainly involved in activation of defense genes in tomato plants, seed development and seed filling. These compounds also show defense response against herbivorous insects and mites. *Panchagavya* is also known to contain growth-promoting substances such as IAA, GA, and aromatic compounds like phenyl acetic acid and benzoic acid. Such aromatic compounds are detected in *panchagavya* as metabolic products of both aerobic and anaerobic microorganisms. These products have a definite role on the plant's metabolism. Several isoprene compounds of microbial origin and unidentified compounds of microbial origin and unidentified components are also associated with this product.

## Recommended dosages

Spray System

Three per cent solution was found to be most effective compared to the higher and lower concentrations investigated. Three litres of *panchagavya* to every 100 litres of water is ideal dilution for all crops. A power sprayer of 10 litres capacity may need 300ml of *panchagavya* per tank. After dilution, the *panchagavya* solution has to be filtered before using it for spraying.

Flow system

*Panchagavya* solution can be mixed with irrigation water at 20 litres/acre, either through drip irrigation or flow irrigation.

Seed/seedling treatment

Three per cent solution of *panchagavya* can be used to drench seed, and to soak or dip the seedlings before planting. Twenty minutes soaking is sufficient. Rhizomes of turmeric, ginger and cuttings of sugarcane can be soaked for 30 minutes before planting.

Seed storage

A three per cent *panchagavya* solution can be used to dip seeds in before they are dried and stored.

**Periodicity of application**

| | |
|---|---|
| Pre-flower phase<br>(20 days after planting) | Once in 15 days (two sprays depending upon duration of the crops) |
| Flowering and pod-setting stage | Once in 10 days (two sprays) |
| Fruit/pod maturation stage | Once during pod maturation |

## Beneficial effects on commercial crops

Mango

- Induces dense flowering with more female flowers.
- Irregular or alternate bearing habit stops and the tree continues to fruit regularly.
- Enhances keeping quality of mangoes by 12 days at room temperature.
- Flavour and aroma of the mango is extraordinary.

Acid lime

- Continuous flowering is ensured round the year.
- Plump fruits with strong aroma.
- Shelf-life is extended by over 10 days.

Guava

- Higher TSS (total soluble solids) and brix, hence tasty.
- Shelf-life extended by 5 days.

Banana

In addition to adding with irrigation water and spraying, a 100ml of the 3 percent solution is tied up at the navel end of the bunch after the flower is removed. The bunch size becomes uniform. The fruits split faster due to faster growth of pulp. Harvest can be done one month earlier. The sizes of the top and the bottom hands were uniformly large.

Turmeric

- Enhances the yield by 22 per cent.
- Extra long fingers.
- Ensures low driage loss.
- Narrows the ratio of mother and finger rhizomes.
- Helps survival of dragon fly, slugs, spiders, etc., which in turn reduce pest and disease load.
- Sold for premium price as mother/seed rhizome.
- Enriches the curcumin content.

Jasmine

- Exceptional aroma and fragrance.
- No incidence of budworm.
- Continuous flowering throughout the year.

Vegetables

- Yield enhancement by 18 per cent, and in few cases like cucumber, the yield is doubled.
- Wholesome vegetables with shiny and appealing skins.
- Extended shelf-life.
- Very tasty with strong flavour.

Paddy

- Heavy tillering.
- 300 grains per earhead.

- No chaffy grains.
- The harvest is advanced by 15 days.
- Percentage of broken rice is reduced during milling.
- Grain weight increases by 20%.
- Cooked rice remains edible even on the following day.

*Panchagavya* was investigated on sugarcane, gingelly, groundnut, mustard, jowar bajra, ragi, maize, wheat, sunflower and coconut. In all the above crops, *panchagavya* acted as a growth stimulant (75%) and disease and pest inhibitor (25%).

## General effects of *panchagavya* on plants

Leaf

Plants sprayed with *panchagavya* invariably produce bigger leaves and develop dense canopird. The photosynthetic system is activated for enhanced biological efficiency, enabling synthesis of maximum metabolites and photosynthates.

Stem

The trunk produces side shoots which are sturdy and capable of carrying maximum fruits to maturity. Branching is comparatively high.

Roots

The rooting is profuse and dense. Further they remain fresh for a long time. Spread and growth of the roots into deeper layers was also observed. All such root parameters help maximum intake of nutrients and water.

Yield

There will be yield depression under normal circumstances when the land is converted to organic farming from inorganic systems of culture. The key feature of *panchagavya* is its ability to restore the yield level of all crops when the land is converted from inorganic cultural system to organic culture from the very first year. The harvest is advanced by 15 days in all crops.

*Panchagavya* not only enhances the shelf-life of vegetables, fruits and grains, but also improves their taste. By satisfying merchants and consum-

ers on both the counts, the produce fetches a good price. By reducing or replacing costly chemical inputs, *panchagavya* ensures economic gain and liberates the organic farmers from loans.

Drought hardiness

A thin oily film is formed on the leaves and stems, thus reducing the evaporation of water. The deep and extensive roots developed by the plants allow the plants to withstand long dry periods. Both the above factors contribute to reduce the irrigation water requirement by 30% and to ensure drought hardiness.

# Experience of farmers with various plants

3

Jasmine

'I adopt *panchagavya* technology for jasmine, turmeric, and onion. The jasmine flowers possess exceptionally high fragrance. At Srirangam and Karur flower market, the flowers are offered premium price of at least 30% higher than the standard price of the day. The peculiar feature is that 0.70 acre produces 5 kg/day, even during winter.'

S. Eswaramoorthy, Karattupalayam.

Turmeric

'I raised turmeric crop organically with the help of *panchagavya*. There was no necessity for chemical pesticide spray. The leaves are comparatively thick, hard and non-fleshy till harvest. The green colour of the leaf was neither dark nor light but uniform throughout. I sprayed *panchagavya* 5 times. It cost only Rs. 20/lt for preparation, with spraying costs of Rs. 8/tank. It is 60% cheaper than pesticides and growth promoter sprays. There was no yield loss but there was quality improvement with low shrinkage and shining yellow colour.'

S. Sakthivel, Korakkattupudur.

Sugarcane (chewing type)

'I am an organic farmer and cultivate turmeric and sugarcane (chewing type). I used *panchagavya* seven times and was able to get 30,000 canes per acre with exceptional height, lengthier internodes and sweetness. I was able to sell each cane at Rs. 10.'

S. Duraisamy, Puravipalayam.

Drumstick

'The flowering was extended beyond five months, while the normal crop stops fruiting after 4 months. I was fed up with pesticide sprays, as I couldn't control the fruit fly and leaf webber. *Panchagavya* was a remedy to control the pests as well as to ensure productivity.'

K. Ramasamy, Arikkarankattur.

Banana

'I attempted *panchagavya* application in three different ways. First, by adding it to irrigation water; second, by tying the solution in polybags at the terminal end of the bunch after removing the male bud; and third, as spray before and after bunch shooting. I was astonished to see the bunch with a bright yellow colour come to harvest 30 days earlier. The top and bottom hands were almost similar in size, the texture of the pulp was fine and sweetness was more. I was able to get 1100 bunches out of 1200 suckers planted in an acre.'

V. Sadagopan, Kulithalai.

*Besides those cited above, there are a large number of farmers who have been using panchagavya for over six years and continue to enjoy the benefit.*

**Vivek and Juli Cariappa**, Mysore, Karnataka
Mobile: 9448750719

Their 35-acre organic farm is situated near Nuhu dam surrounded by hills and a river in a natural setting. They cultivate in 15 acres and have left 20 acres as a natural forest. They lift water from the river with two 5 HP motor pump sets and irrigate with sprinklers.

Since their farm is situated in a remote hilly area they have made the farm self sufficient in all aspects. They have tractor, power tiller, and bulls for ploughing. There is a small mechanical workshop to make and repair

farm implements and machinery. There is a small cottage factory to make organic jaggery from their sugarcane.

Besides this they have got a small flower mill to make ragi malt from ragi, wheat flour from wheat which is cultivated on their farm. For personal and goods transport they have a Tata mobile pick-up van apart from a motorcycle and cycles.

There is a small dyeing unit for natural dyeing of their yarn made out of organic cotton produced on their farm. Apart from these machineries, they have got milking cows, goats and chickens for making the farm fully self sufficient.

Their two sons and their adopted daughter are also working with them on the farm. The elder son is Kabir, 18 years old; younger is Azad 12 years old; their daughter is 8 years old. They are being educated by their parents and do not go to school. They write their exams through open school and university system. Their knowledge, intelligence, work experience and decision making skills are beyond their age. They love organic farming and help their parents on the farm. Most of the farm operations are done by the family members without hiring farm workers.

They produce everything on the farm for their family consumption and the surplus they sell in the market. They purchase only salt and match sticks from the market. All the farm inputs like cowdung compost, vermi compost,*amirtha* solution (*amrut pani*), and *panchagavya* are made on farm to reduce the input costs. Now we will see their crops, value addition, labour reduction, and their way of selling their products for a premium price.

1. Sugarcane

For all crops they give farmyard and cowdung compost, vermi compost, *amirtha* solution, *panchagavya* and, if necessary, herbal pest repellent to protect the crops from pests. Their sugarcane grows luxuriously and gives good yield with organic inputs.

Unlike other farmers, they don't sell their sugarcane. In their small jaggery making unit they crush the sugarcane and boil the juice in a boiler to make organic jaggery without adding any chemicals. In each batch they crush 800 kg of sugarcane and make jaggery by boiling. Before using *panchagavya* they got 75 to 80 kg of jaggery from 800 kg of sugarcane. After using *panchagavya* in the last few years, they get 115 to 120 kg of jaggery from 800 kg of

sugarcane. The increased sugarcane recovery is almost 30% with the use of *panchagavya*.

The taste and flavor of their organic jaggery is excellent. It is sold in attractive paper packs in the local Mysore and Bangalore markets and even in Delhi. They have supplied their organic jaggery to a marriage ceremony at Delhi for making sweets for 3000 guests. The sweets made out of this jaggery was liked and appreciated by everybody who attended the dinner for the good taste. So their organic 'Carriapa' brand jaggery fetches a good price in the market.

2. Ragi

The organically cultivated ragi is spouted, dried and made into flour in their mini flour mill. Organic ragi malt flour is good for health for all age groups. Since it contains abundant calcium, iron and other nutrients, it makes a natural healthy hot drink for all without injuring health like tea and coffee. It is sold in attractive degradable packing and liked by health-loving people. Instead of directly selling ragi, they make ragi malt and earn a better price.

3. Wheat

They make whole wheat flour with their organic wheat. They make organic bread with their wheat flour for their own use and for sale. Their organic wheat flour is sold in the local market for a fair price.

4. Fruit trees

Mango, sapota, amla, lemon, papaya and banana are the fruit trees grown on their farm. They make fresh fruit juice, jams and pickles which are highly tasty and make the consumer healthy and the seller (farmer) wealthy.

5. Vegetables

They cultivate brinjal, ladies finger, tomato, bottle gourd, ripped gourd, snake gourd, etc... both for their family consumption and for sale.

6. Cotton

The cotton crop is grown organically. They get good and quality yield with the use of *panchagavya*. After the use of *panchagavya* the fibre length of the cotton has increased by 10%. Previously it was 28mm and now it is 31mm in length as tested and certified by the South Indian Textile Research Association labs (SITRA) Coimbatore. They send their organic cotton to a

spinning mill at Coimbatore for making yarn. They dye their yarn in various colours with their own plant dyes in their small dyeing unit.

Their organic cotton yarn is given to handloom weaves to make woven cloth. Out of this organic cloth, organic cotton garments like shirts, pants and jeans are made and sold to fetch a high price. They use only native cotton seeds and not the genetically modified BT cotton seed. While the chemical cultivation of cotton leads to suicides, organic cotton cultivation leads to prosperity and happiness.

I visited their farm in the summer of 2007. When I reached there in the evening, I found their elder son Kabir ploughing with a tractor, younger son Azad ploughing the land with two bullocks. Their father Vivek Cariappa was irrigating the crops with a sprinkler, while their mother Julie was working in the dyeing unit. I found all the family members working harmoniously and happily.

After going round their farm, the couple explained their philosophy and principles behind their organic farming methods, value addition technology, labour reduction methods and their way of family and personal life. They are very contented and happy people indeed. They are earning Rs.15 lakh per year from their farm activities. They say it is more than sufficient for leading a happy life. Since all the members work hard on the land, they get good appetite, better health and sound sleep. 'What else you need?' they ask.

Cariappa asked me a question. 'What is wealth?' Being a physician I said 'Health is Wealth!' He said no, no, it is not wealth. Having an enjoyable leisure time with family members after a day's hard work is WEALTH! Yes! Indeed it is alone wealth. They are a contented and happy family without any greed to reach unreachable man-made goals in life.

The main and most important theme of their life is SELF SUFFICIENCY, LABOUR REDUCTION, and VALUE ADDITION to lead a prosperous healthy and happy organic farming life. Their motto is not to strain the mother earth and nature to get more yields but to make what the Mother Nature gives more valuable in all aspects.

Their farm is a temple to visit and the couple are *rishis* to every seeker who desires advice and guidance in how to interact with the earth.

**Shri. Sreenivasa Reddy**, Nanda Gokul Gosala,
Narinal Village, Koppal (DT) Karnataka.
Mobile: 9901984444, 988973037, 9704439444.

Reddy is an organic farmer running a goshala-cum-dairy farm with 50 Gir cows, a native breed of Gujarat. The Gir gives an average milk yield of 8 to 10 litres per day. Its milk is thick and tasty with more fat content, SNF and other nutrients than that of the cross bred cows which give more milk but of poor quality.

On his 70-acre farm, Reddy cultivates maize, sunflower, ragi, paddy, sorghum, and vegetables. For all his crops he uses *panchagavya* and organic manure only. He says *panchagavya* effects luxuriant growth of plants. It gives immunity against diseases and pest attacks. The crops come to early harvest. It gives more yield and more weight to the produce. It enhances the taste, flavour, aroma and keeping quality of all cereals, vegetables and fruits. Hence they fetch more prices in the market and they create more demand from the urban consumers. The consumers are ready to pay more for the quality of the produce.

Six months back Reddy was introduced to organic farming and *panchagavya*. In a very short period he has established a goshala with a native breed of cows. He is producing cowdung compost, vermi compost, *panchagavya* and herbal pest repellents. He uses them on his organic farm and distributes them to nearby organic farmers in his village. In the short period of six months he has trained more than 350 farmers in the use of *panchagavya* and organic farming methods. He has made a CD on the preparation and usage of *panchagavya*, and the experience of organic farmers with the use of *panchagavya* in the Telugu language. So far he has distributed more than 500 copies free of cost to organic farmers.

His experience and his way of propagating organic farming and *panchagavya* is worth replicating in other languages and other areas of all states in India.

**Shri. K. Sithar**, Thanjavur, Tamil Nadu,

Phone: 04362-239788, 272417, Mobile: 9443139788.

Sithar is an organic farmer having 150 acres of fertile land in the Cauvery delta. He cultivates paddy, black gram, green gram, and vegetables. He runs an organic food shop with organic cereals, pulses, vegetables, fruits, and spices. Apart from his own produce, he helps other organic farmers to sell their produce for a better price.

He has developed a simple technology to produce indigenous Effective Microorganism solution (EM solution). It can be produced at the farm level with the inputs available with the farmers. Like *panchagavya*, it is easy to make, economic and effective for all crops. It can be used to convert salt water into potable water. He trains the farmers in making the solution which is popularly called 'Farmer's EM' or 'Sithar Solution'. He also produces a Gunabajala with the rats available in his rice field. It gives high quantity of nitrogen and other nutrients to the soil.

He also trains the farmers in making *panchagavya*,*amirtha* solution, herbal pesticide, vermi compost and other organic inputs. He guides them to produce all crops organically at minimum cost with more yields. All these things are done as a free service to all farmers, whether rich or poor.

Sithar's cultivation of paddy includes a special native variety called 'Seeraga Samba'. It is a very fine aromatic variety, like basmati rice. It is used for making special dishes like biriyani. For cultivating paddy he uses vermi compost for basal dressing.

He leaves the harvested paddy straw in the field itself to compost and become organic manure for the next crop. He mixes farmer's EM solution, *amirtha* solution with irrigation water for root feeding. He sprays *panchagavya* as a foliar spray. He gives 4 to 5 sprays for all crops. He also uses *panchagavya* for seed and seedling treatment.

He says 'with *panchagavya* the rice plant grows strong and sturdy like young bamboo plants.' The tillers number from 30 to 55. With heavy tillering, more grains per earhead, more weight to the grains without choppy grains,*panchagavya* gives higher yield than chemical fertilizers. Moreover, the harvest is advanced by 15 days. This saves labour cost and bringing the rice to the market much earlier than the other chemical farmers who dump their rice in the market late, which brings the price down.

Since the rice is brought to the market ahead of the season, it fetches a good price. During milling the percentage of broken rice is much less. The cooked rice is highly tasty with enhanced aroma. He is milling the entire cultivated paddy to make rice and sells it direct to the customers. Its good quality gets better prices. The consumers become regular purchasers and the love for organic rice boosts the sales.

The use of a native variety and *panchagavya* gives more straw for the use of cattle and for manure. He replicates Masanobu Fukuoka's *One Straw Revolution* in the Cauvery delta of Tamil Nadu. He has received many awards for his innovative organic farming methods.

**Shri. John Dhanaraj**, '*Panchagavya* Bakthar',

Chennai, Tamil Nadu,

Phone: 044-24826843, Mobile: 9444779476.

Dhanaraj is a retired high school head master. He is a hard working simple man, and he is doing *panchagavya* farming in his 25 acre farm near Chennai. He calls organic farming, '*Panchagavya* Farming' because of his love for *panchagavya*. He not only uses *panchagavya* but also teaches other farmers all over Tamil Nadu to produce and use it for all crops, animals, birds and human beings. His dedication and hard work to promote *panchagavya* to all people earned him the name '*Panchagavya* Bakthar' meaning 'Devotee of *Panchagavya*'. He is by nature, by profession, by service, a born teacher par excellence. The only difference after his retirement is his teaching of *panchagavya* farming without a salary.

After his retirement, Dhanaraj purchased a 25-acre farm near Chennai with his retirement benefits. On that land he cultivated paddy with heavy doses of chemical fertilizers and pesticides. In the first two years his yield was normal. From the third year onwards, the yield started declining and the cost of fertilizers and pesticides increased. He started losing money and soon approached banks for loans.

In the critical situation he got my Tamil edition of the *panchagavya* book. After reading the book again and again he came to know the other world of farming that is organic farming with minimum expense and maximum profit.

He started using *panchagavya,amirtha* solution and herbal pest repellent for his crops on the farm. He totally stopped using chemical fertilizers and

pesticides in his farm. The growth of the paddy was luxurious with more tillering, more grains per plant. He harvested a good crop with good yield and quality without any costly external inputs.

After the harvest he met me and profusely thanked me for the innovation called *panchagavya*. He said many farmers from nearby villages visited his farm to see the transformation. Then I sent Mr. Athur Senthilkumar, a reporter from 'Tamizhlaga Vivesaye Ulagam', an agricultural Tamil monthly, to interview him.

After the publication of his interview in that popular magazine, Dhanaraj became very famous. Now his farm is visited daily by many farmers. He teaches and demonstrates the preparation and use of *panchagavya*,*amirtha* solution and herbal pest repellent for all farmers. He travels to many villages to give lectures on organic inputs and organic farming. Apart from these activities, he writes regularly his experience and the experience of other organic farmers he meets in the same Tamil monthly.

He mixes *panchagavya* with feed for the chickens on his farm. They grow well without any disease and give more eggs and meat. He gives *panchagavya* to his cows to get more milk and to prevent and cure diseases.

Daily he applies *panchagavya* all over his body early in the morning and takes bath after two hours, using soap nut powder. He does not use any soap. He says *panchagavya* keeps the skin healthy and shining without any skin diseases. It gives a cooling effect to his brain, eyes and body. It gives all the benefits of traditional oil bath. It turns the grey hair into black. And gives a lustrous look like his *panchagavya*-sprayed paddy field.

In his words, *panchagavya* transformed his life! In my words, John Dhanaraj transformed the life of many many farmers and made them healthy and wealthy without any diseases and loans!!

**Shri. Selvaraj**, Udumalaipettai, Tamil Nadu,

Mobile: 9942110045

Selvaraj is an organic farmer with an organic food shop. He cultivates rice, wheat, maize, banana, coconut, green gram, red gram, black gram, betel leaves, beetroot, vegetables and greens. After cleaning, grading and value addition, he sells his organic produce in his own shop.

He prepares *panchagavya*, organic compost, vermi compost, *amirtha* solution and herbal pest repellent for his use and for sale. He also trains the farmers in the preparation and use of the above inputs. He supplies the organic inputs for small and marginal farmers who do not have cows and who cannot prepare the organic inputs. He purchases their organic produce at higher rates than the exploiting traders and sells the organic produce in his shop.

Thus he helps the small farmers in the production of organic food at lesser cost and to get more prices for their produce. In this way he is ushering an economic revolution with ecological conservation of nature.

In his opinion, the use of *Panchagavya* accelerates the growth of all plant with early flowering, early maturity, and early harvesting. All the farm operations like weeding, spraying, manuring and harvesting are advanced by 15 days. There is a farm labour shortage in his area due to the spinning mills. Since he carries out all farm operations 15 days earlier than the other farmers, he does not face the problem of labour shortage.

This is one aspect of the problem. The other aspect is economical. At peak farming season, the labour cost is more and less during off season. Since he does everything in advance, he saves on labour cost. The other advantage is that his produce reaches the market much earlier than the othe chemical farmers, and fetches a higher price than the produce of others. In one way he saves money and in the other way he earns more. In both ways he is benefited. This truth applies to all organic farmers.

He says that the use of *panchagavya* increases the weight of the produce, keeping quality, taste, aroma and flavor and helps the farmers to get more price in the market. Once the consumers taste the organic food they again and again come to the shop to purchase more and more of it and also introduce it to their friends and relatives. Thus the organic consumers are increasing day by day to boost organic farming.

**Shri. Anthonisamy**, Puliangudi, Tamil Nadu,

Mobile: 9443582076.

Shri. Anthonisamy is an innovative organic farmer with 200 acres of land. He grows amla, acid lime, paddy, sugarcane, gingelly and vegetables. In the seventies and eighties, he was a hero of the green revolution. In the nineties he became a zero with a bank loan of Rs. 56 lacs. He and his wife

became diabetic patients with serious complications due to intensive chemical farming and pesticide-contaminated food.

The bank sent a notice threatening to auction his land mortgaged to it if he failed to repay the loan amount with interest and penalties. Day by day the bank interest and medical expenses for diabetic complications went up steeply. He became mentally and physically sick due to the economic and health disaster.

The farmers in this area had formed an agricultural service society in the name of 'Vivasaya Seva Sangam'. The society purchased chemical fertilizers and pesticides directly from companies and sold them to its members and to other chemical farmers with minimum profit. The sales zoomed and earned huge profits for the institution. The society utilized the profit to educate and train the farmers in modern chemical farming. It arranged free tours to the farms of progressive chemical farmers in other areas of Tamil Nadu, Punjab, Gujarat, Maharashtra and Andhra Pradesh.

In the early years the farmers got bumper yields through the Green Revolution and many farmers became rich. In due course, however, due to mono cropping and intensive chemical farming, the fertility of the soil decreased and fields got degraded due to heavy use of chemicals. The air and water sources were also polluted. At the same time the yields started declining and the cost of the chemical inputs started to increase and the price of their produce started to decrease.

Due to the uneconomical prices realized in the market for their produce the farmers became poorer and poorer with huge bank loans and loans from other private lenders. Then the government stepped in to save the farmers and announced a minimum support price for wheat and paddy. They gave huge subsidies to the fertilizer companies to keep the price under control.

Then the farmers used more fertilizers and pesticides to arrest the decline in the yields. This did not work and they became more indebted. The support price of government did not increase sufficiently. Due to the fall in production of wheat and oil seeds, the government was forced to import them for lesser price from other countries where their farmers get heavy subsidies. The import of cheaper grains further depressed the market for Indian cereals and oil seeds. This has become a vicious circle from which the farmer and the government do not know how to come out till now.

The result is that the poor farmer is committing suicide in large numbers in the last 10 years in Andhra Pradesh, Punjab, Karnataka and Maharashtra. This development and tragedy is really terrifying. The important lesson to learn is that not a single farmer who is doing organic farming has committed suicide.

Now we return to the story of Anthonisamy. Not only Anthonisamy but the other farmers of his association and others were also in the same boat. Every day evening they assembled in their association office and discussed their problems to find out a solution. In the early years they talked about the modern methods of cultivation to boost their yield.

Then in due course the situation changed. Their yield declined and the loans mounted. Then they started talking about the lower yield and higher loans each one incurred. At that time Shri Gomathi Nayagam who was their association secretary and a retired teacher talked about organic farming which he came to know by reading the 'Organic Farming Source book' by Claude Alvares from Goa.

The organic farming news was interesting and they collected more information on organic farming from other sources. Then they visited the farms of successful organic farmers. They came to know that the organic farmers are getting good and quality yields with natural inputs prepared by them. They were happy without any loans and diseases.

On one fine evening in their association meeting they all decided to close their shop selling chemical fertilizers and pesticides and to follow organic farming methods. Then they started conducting regular monthly lecture and training programs on organic farming. Even now they are conducting regular monthly meeting to update their knowledge on organic farming.

I was invited in the year 2000 to give a lecture on *panchagavya* and organic farming. Now all farmers in that area use *panchagavya* for their crops and animals. Anthonisamy also started following organic farming methods. He started to produce organic compost, vermi compost, *amirtha* solution, *panchagavya* and herbal pest repellents. He uses all these inputs for all his crops.

### Acid lime and amla

Acid lime is cultivated in 60 acres and amla in 30 acres. He gives organic manure and vermi compost @ 10 kg for each tree once every 6 months.

Every month he provides 10 litres of amirtha solution for each tree. He sprays 3% *panchagavya* solution for all trees once a month. Both acid lime and amla varieties are grafted with wild root stock by his efforts. Now many nurseries are following his innovation: because of the wild root stock the trees withstand drought and give good yields round the year.

He says the *panchagavya* spray induces dense and continuous flowering round the year. In the acid lime, the fruits are plumpy with shining skin and strong aroma. The shelf life is extended by 10 days. *Panchagavya* prevents bacterial cancar in the fruits. Each 8 year old tree yields three thousand fruits per year. Because of the quality and size they fetch one rupee per fruit in the paliyangudi auction market.

Similarly the yield of amla is good with high ascorbic acid (vitamin C) content. Since it contains more vitamin C it is mainly used to prepare ayurvedic medicines, tonics, pickles, and some sweets. It is one of the main ingredients in Triphala and Chyavanprash lehyam. Both are good immuno modulators, rejuvenators and life span extenders, useful for all ages of human beings. Hence they are called 'Kayakalpha Medicines' by Ayurveda and Siddha medical practitioners. Kayakalpa medicine is one which prevents diseases and postpones death and leads to a healthy and long life.

Each 7 year old amla tree yields 150 kg per year. His native variety which is very useful in ayurvedic medicine is purchased by ayurvedic manufacturing companies of nearby Kerala at a premium price of Rs. 20 per kilo all round the year.

Paddy

Anthonisamy cultivates 4 varieties of native rice. Seeraga Samba, a very fine variety; Thooya Malli, meaning pure jasmine in Tamil, is a fine variety which after cooking looks like pure white jasmine flowers. Hence the name Thooya Malli. Another fine variety is J19 Samba which, after cooking, melts in the mouth like ice cream. One coarse variety is Puzhuthi Viratti: the rice is red in colour. This is used to make Aval, a semi cooked and compressed form of rice. When soaked in water for 20 minutes, it becomes ready to eat like cooked rice. It can be eaten by mixing with jaggery, sambar, rasam, vegetables or curd. Since it is a ready mix rice food it is liked by travelers since ancient times. With its medicinal quality it is very good for health.

All the above rice varieties are with more nutrients, better taste and aroma and fetch higher price in the market. Anthonisamy sells the rice after milling at a rate of Rs. 25-30 per kilo. With organic inputs he gets a yield of 30 bags of rice per acre.

Method of cultivation

He soaks the seeds in 3% *panchagavya* for 24 hours and uses it in the seed bed. The seed bed is prepared with organic manure and *amirtha* solution. On the 15th day he gives one spray of 3% *panchagavya* and mixes it with the irrigation water.

Before transplanting, he dips the root of the seedlings in 3% *panchagavya*. After transplanting, he gives 4 to 5 sprays of *panchagavya* at an interval of 15 days. Before transplanting, he prepares the field with good amount of green manure and cowdung compost. Once in 30 days he mixes *amirtha* solution along with the irrigation water at the rate of 500 litres per acre. If necessary, he gives two sprays of 10% herbal pest repellent at an interval of 30 days.

He says the use of *panchagavya* in paddy induces more tillering, uniform filling of earheads without chaffy grains and more grains per tiller. The crop comes to harvest 15 days earlier than the other farmers who do not use *panchagavya*. Each bag of paddy weights 15 kilos more than the chemically grown one. During milling the percentage of broken rice is reduced and the recovery is more. The cooked rice can be kept for one day in good eatable condition.

The J19 Samba crop grows 6 feet high and gives more hay for the use of cattle. Thus in all ways *panchagavya* gives good yield.

Sugarcane

In 40 acres he organically cultivates sugarcane. He prepares the field with good quality green manure and vermi compost. Before planting the seed cuttings, he soaks it in 3% *panchagavya* solution for one hour and then plants them. He sprays 3% *panchagavya* once in a month and also gives *amirtha* solution once in a month by mixing 500 litres with irrigation water for one acre.

The sugarcane grows luxuriously with sturdy and bigger canes with increased internodal distance. The height is more, so it gives an average yield

of 65 to 80 tonnes per acre. The crop matures for cutting one month earlier than the chemically grown crops.

He does not sell the sugarcane to the factories. He makes organic jaggery at his own jaggery making unit, giving employment to many poor farm workers.

He gets 150 kilos of jaggery per tonne of sugarcane with 15% sugar recovery which is more than that of sugar factories. (Their average recovery is only 10%.) The white refined sugar from the factories gives calories alone without any nutrients. On the other hand, the organic jaggery contains all the essential vitamins, amino acids, iron, calcium, minerals and other trace elements in abundance. So their organic jaggery is good for health. The white sugar is bad for health and so it is called the 'The Curse of Modern Civilization'.

Because of its sweet taste, beneficial effects for health and good keeping quality it fetches a premium price of Rs. 20 per kilo in the market. An Ayurvedic medical unit in Kerala purchases his organic jaggery for producing lehyams.

Farm forestry

Anthonisamy grows many varieties of timber species like teak, red sandal, mahogany, bamboo, a fast-growing variety of neem called Malai Vembu and casuarina trees in 30 acres of land. In all his tree growing land, like farm forestry, amla and acid lime, he avoids weeding operations. In the rainy season the weeds grows to a height of 3 feet and dry in the hot summer months. They form good mulching material for the soil, becoming a manure for the same soil. This helps the growth of more earth worms and other beneficial soil microbes which enrich the soil and make it porous to allow more rain water to enter the soil. This increases the fertility of the soil with less evaporation of soil moisture and more absorption of water which gives more yield.

His vast organic farm has become a model for others to follow. His farm is frequently visited by many farmers, agricultural scientists and other officers. He has proved to the chemical farming world that organic farming is possible and it can be successful and more profitable. After returning to organic farming he had repaid his entire loan of Rs. 56 lakhs with interest and penalties within 10 years, and after eating organic food he and his wife

has regained their health and are free from the curse of diabetes and other diseases. At the age of 70 years he is more energetic than a young man.

His mentor, friend and organic farming teacher Mr. Gomathi Nayagam used to say in all organic farming workshops that 'A man without disease is young and the one without loan is rich.' Now Shri Anthonisamy is young and rich in all aspects.

So the life and experiences of Shri Anthonisamy are a lesson to be learnt by all farmers across the world, leading one to health, wealth and happiness

**Shri. P. B. Mukunthan**, Chengalpattu, Tamil Nadu,

Mobile: 9382337818.

Mukunthan's 150 acre farm is cultivated organically. In 60 acres he grows Alphonso and Banganapalli mango varieties suitable for export. In 40 acres he grows paddy, soya beans, vegetables like tomato, bhendi and brinjal. He grows fodder sorghum and Co 3 fodder grass for cows. He runs a goshala with 100 Tharparkar cows. He sells his organic produce at two places at Chennai in his organic food shops.

Mango orchard

Alphonso and Banganapalli mangoes are the two delicious varieties in his farm. He gives each six year old mango tree 30 kilos of cowdung compost and 30 kilos of vermi compost one month before flowering. After flowering he gives 20 litres of *amirtha* solution once in a month until the fruits are harvested. He uses 3% *panchagavya* solution as a foliar spray. He gives two sprays at an interval of 15 days in the pre-flowering stage and three sprays after pod setting stage at an interval of 15 days. He gives one more spray after the harvest to replenish the nutrients to restore the health of the trees.

He says that the use of *Panchagavya* induces heavy flowering with more female flowers. It stops the irregular or alternate bearing habit and ensures regular and abundant bearing year after year. It reduces flower and pod shedding. The fruits are big and plumpy. *Panchagavya* increases the number and weight of the fruits. It increases the sugar content of the fruits by 25%. It develops extraordinary taste, flavor and aroma. It enhances the keeping quality by 12 days in open room temperature. *Panchagavya* induces early flowering and maturity leading to an early harvest by 15 days. Early arrival of mangoes at the start of the season gets good price.

He sells his fully ripe, attractive and delicious mangoes in his own organic food shop. It is also purchased by a Delhi trader at a premium price for export. By both ways he earns more. Because of the attractive colour, size, taste, flavor and aroma he gets more customers.

### Paddy

He grows rain-fed native varieties of rice like Kuttai Kar and Nettai Kar. They are grown after the southwest monsoon starts in June or July and harvested after the end of the northeast monsoon in December. It is a six month old crop and it gives an average yield of 20 bags (75 kg each) of paddy without much expenses. He gives 3 or 4 sprays of *panchagavya* and cowdung manure as a basal dressing. Rain fed rice is coarse, hardy and tasty.

### Vegetables

He produces bhendi, brinjal, tomato, capsicum, small onion, pumpkin, bitter gourd, bottle gourd, ribbed gourd, and snake gourd. All the above varieties are native ones.

He prepares the land with adequate doses of cowdung compost and vermi compost. He treats the seeds and seedlings in *panchagavya* solution. It ensures better germination and good quality seedlings with dense rooting. He regularly sprays *panchagavya* for all vegetables once in 15 days until the harvest. Because of the good size, taste and keeping quality the organic vegetables are selling like hot cakes in his own shop. Since it is organic it fetches more price than the chemical ones.

### Goshala cum dairy

Mukunthan's goshala has more than 100 Tharparkar cows and a few bulls as well. The Tharparkar is a hardy and sturdy animal of Rajasthan. This breed is well adapted to harsh climatic conditions and poor fodder. It thrives well in the Rajasthan desert and the fertile plains of Tamil Nadu. With very little maintenance this disease free cow gives an average yield of 10 litres of milk. The milk is thick with more fat and SNF content and tasty, unlike the milk of cross bred cows.

He sends the milk to Chennai and sells it at the rate of Rs. 20 per litre. He is not able to meet the heavy demand for milk of this quality. He makes curd in 250 ml mud pots and sells it for Rs.10. So one litre milk fetches

Rs.40. This indeed is innovation and value addition at no extra cost. It doubles the profit without any cost.

He gives a daily dose of 100 ml undiluted *panchagavya* and 50 grams of Gosanjeevi powder (herbal cattle immunity booster). It boosts the immunity of the animals against all diseases and increases the milk yield and fat content. It ensures regular conception and de-worms the animals. It enhances digestion and assimilation thus reducing the feed quantity and saves cost.

For all his cows he gives the Gomari Sanjeevi (herbal antibiotic for cattle) once in six months. The dose is 500 ml for adult animals and 250 ml for calves. It is given as a single dose. It de-worms and builds immunity and prevents foot and mouth disease and mastitis. (The method of preparation of Gosangeevi and Gomari Sanjeevi is given in the cattle section of this book.)

Sunday market

A Sunday organic food market is held every week at Chennai. There Mukunthan markets his own produce and that of other farmers as well. Being a Sunday market, the office going city people throng the place from morning to evening to procure their organic foods. Any organic farmer can send any organic product to this market and fix his price. All organic cereals, pulses, vegetables, fruits, greens, jaggery, edible oil, honey and pickles are available.

Shri Mukunthan says that this market gets good price for organic farmers and quality product for city consumers at a reasonable rate without any jack up of prices by intermediate traders and commission agents. His concept is 'you produce with your own inputs; you sell it at a price fixed by you and serve your family and community at the same time.'

**Mrs. Shantha Ramasamy**, Srivastha Farms,

Coimbatore, Tamil Nadu,

Phone: 0422-2454817, Mobile: 9443321933.

Shanta Ramasamy's beautiful 150 acre farm is situated near Velliangiri hills near the Western Ghats, 10 km west of Coimbatore. Her husband is an industrialist. So she single-handedly and with dedication manages the vast organic farm. She turned to organic farming in the year 1999 after seeing an article on *panchagavya* in the newspaper, 'The Hindu'.

She grows cashew nut trees, coconut trees, guava, mango, sapota, banana, rice and vegetables. Previously she used to spray Endosulphan, a highly toxic chemical pesticide on the cashew nut trees at pre-flowering and pod setting stages. This toxic chemical has ruined the health of many people in Kasargode district of Kerala. There the cashew nut forest owned by the Kerala forestry department was frequently sprayed with Endosulphan. They sprayed it from the air with helicopters.

Many villages in and around the cashew forest developed cancer and respiratory diseases. Many babies were born with birth defects like cleft palate and lips. Many other babies were born without fingers and limbs due to genetic mutation caused by this carcinogenic chemical. After a long fight with the forest department and in the court with irrefutable medical evidence, the use of the chemical was given up by the Kerala government.

When she was using this chemical there were only 2 to 3 fruits per bunch. After spraying *panchagavya* she says each bunch carries 8 to 10 fruits. The trees look beautiful with more fruits and green canopy after the use of *panchagavya*. Previously there was hesitation and fear to eat the pesticide sprayed fruits. Now there is no inhibition in plucking and eating them.

She procures cow's milk and tender coconut water free of cost from temples. They daily use lots of milk and tender coconut water for the *abishekam* (ritual) to bath the deity. They give little quantity as *prasad* to devotees and the rest is let out in the drains and wasted. She gets this wasted milk and tender coconut water free of cost and uses it to make *panchagavya*. Thus she saves money in making large quantities of *panchagavya* for her vast farm. Wherever possible this innovative method should be followed by other farmers also.

She says the use of *panchagavya* in guava ensures dense flowering and gives big and tasty fruits. It increases the shelf life of guava by 10 days. She runs Srivatsa organic food shop at Coimbatore for selling her own produce and that of other organic farmers.

# 4 *Panchagavya* for animal health

After successful studies on plants using *panchagavya*, trials were started on animals and humans. So far, the results are highly encouraging and very successful. Many farmers have started using *panchagavya* and they gratefully inform other farmers of its effectiveness.

## Mode of action

Basically, *panchagavya* is a living elixir of many microorganisms, bacteria, fungi, proteins, carbohydrates, fats, amino acids, vitamins, enzymes, known and unknown growth-promoting factors, micronutrients, trace elements, antioxidants and immunity-enhancing factors.

When taken orally by animals and human beings, the living microorganisms in the *panchagavya* stimulate the immune system and produce a lot of antibodies against the ingested microorganisms. It acts like a vaccine. This response of the body increases the immunity of animals and humans and thus helps prevent illness and cures diseases.

Panchagavya slows down the aging process and restores youthfulness. The other factors present in *panchagavya* improve appetite, digestion, and assimilation and elimination of toxins in the body. Constipation is totally cured. Thus, the animals and humans become hale and healthy with shining hair

and skin. The weight gains are impressive. One has to see it and experience it to believe how effective it can be.

### Use of *panchagavya* with animals

So far we have tested *panchagavya* on dogs, pigs, poultry, fisheries, goats, sheep, cows and humans with successful results and without any unwanted harmful side effects. Unlike *panchagavya*, chemical drugs all have residual effects.

### Pigs

*Panchagavya* was mixed with drinking water or feed at the rate of 10 ml to 50 ml per pig depending upon the age and weight. The pigs became healthy and disease-free. They gained weight at a faster rate. The feed-to-weight conversion ratio increased tremendously. This helped the piggery owners to reduce the feed cost and to get very good returns due to the increased weight.

### Goats and sheep

The goats and sheep became healthy and gained more weight in a short period after having administrated 10 ml to 20 ml *panchagavya* per animal per day depending upon the age.

### Cows

Initially I thought cows would not take *panchagavya* because it is their own excreta. However, this was proved wrong by my farm assistant. He mixed it in the feeding trough with animal feed and water at the rate of 100 ml per cow per day. The cows became healthier with increased milk yield, fat content and SNF. The rate of conception increased. Problems like retained placenta, mastitis and foot and mouth disease became things of the past. Now the skin of the cow is shiny with more hair and looks more beautiful.

Instead of spraying urea on paddy straw (hay) before stacking, a few farmers sprayed the 3 percent solution of *Panchagavya*, layer after layer during the stacking, and allowed it to ferment. The cows prefer such hay compared to unsprayed hay stock.

### Poultry

When mixed with the feed or drinking water at the rate of one ml per bird per day, the birds became disease-free and healthy. They laid bigger eggs for

longer periods. In broiler chickens the weight gain was impressive, and the feed-to-weight conversion ratio improved.

Fish

*Panchagavya* was applied daily with fresh cowdung in fishponds. It increased the growth of algae, weeds and small worms in the pond, thus increasing the food availability for the fish. The only precaution is that fresh water must be added to the ponds at frequent intervals. Otherwise, the growth of algae, weeds and other organisms will compete with the fish for available soluble oxygen in the water. Alternatively, mechanical agitators can also be used to increase the oxygen content in the water. In ten months time each fish grows to a weight of 2 to 3 kg. With reduced death rate of small fingerlings and increased weight or marketable fish, fisheries become more profitable.

## Other veterinary care products

Gomari Sanjeevi (Herbal antibiotic)

Training programs have been organised to train the farmers in the preparation of botanical products for cattle care. This is a decoction of fresh neem bark and leaves of the jackfruit tree.

Preparation

Add 300 grams of fresh neem bark (after discarding the dried outer layer) and 200 grams of green leaves of the jackfruit tree to 5 litres of water and boil it in a mud pot to reduce it to 2.5 litres of concentrated decoction. After filtering, the red coloured decoction can be used as an oral medication for cattle.

Dosage

Cattle - 500 ml one time dose on appearance of symptoms and can be repeated if the symptoms persist.
500 ml one time dose to other animals as preventive measure.

Calves - Half the above dose.

Goats - 100ml / dose.

Special features

- Controls and prevents foot and mouth disease in cattle.
- Prevents and cures all kinds of fever in animals.
- Acts as a de-worming agent.
- Restores the fertility status.
- Does not have any side effects.

Gosanjeevi (herbal cattle immunity booster)

RCAC imparts training to farmers on how to prepare the cattle immunity booster. It contains leaves of *Azadiracta indica*,*Albizzia amara*,*Tinospora cardifolia*,*Andrographis paniculata* and roots of *Withania somnifera*.

Preparation

After shade drying, powder the above ingredients by pounding in a stone mortar. Each ingredient should be powdered separately. Then mix them in the following proportion to make one kg of powder for usage.

| | |
|---|---|
| *Azadiracta indica* leaf powder | 300 grams |
| *Albizzia amara* leaf powder | 300 grams |
| *Withania somnifera* root powder | 300 grams |
| *Tinospora cardifolia* leaf powder | 50 grams |
| *Andrographis paniculata* leaf powder | 50 grams |

Dosage

50 gm once a day mixed with the cattle feed and drinking water of the cattle.

Special features

- Boosts the immunity to all kinds of diseases in cattle.
- De-worms, cleanses intestine, and enhances digestion and assimilation.
- Upgrades quality of milk with increased milk yield, fat content and SNF and nutrients.
- Regulates the ovulation cycle and increases conception rate.
- Prevents retained placenta.
- Prevents mastitis, fevers and foot and mouth disease.
- Cost-effective.

# 5 *Panchagavya* for human health

The farmers who handled *panchagavya* and herbal pesticide informed me that their appetite had incfreased. Psoriasis was cured. The white patches on the skin disappeared. The split wounds on the foot healed.

One lady with psoriasis all over the body was under allopathic treatment for over one and a half years. She happened to prepare *panchagavya* for field use and stirred the contents with her forearm. After 15 days, the psoriasis in her forearm got fully cured. Following her own intuition, she smeared *panchagavya* all over the body and to everyone's surprise, the psoriasis disappeared in 21 days. This has made me think in terms of using *panchagavya* to treat human ailments. Some experiences are given below.

## Dosage

50 ml of filtered *panchagavya* mixed with 200 ml of water, tender coconut water or fruit juice taken orally on an empty stomach in the morning. This is for all type of diseases.

## AIDS/HIV

AIDS patients regained lost appetite and digestion and put on weight after taking*panchagavya*. They slept better. Their fever, cough, diarrhea and skin lesions disappeared within a months' treatment. Most of them are now working in the fields and others are pursuing their own professions. Even

though the blood tests are still positive, they exhibit no symptoms of AIDS and lead a normal healthy life. I hope the blood tests may become negative after long use.

### Psoriasis

In psoriasis *panchagavya* is very effective and the lesions disappear within six months. In eczema and other allergic skin disorders, healing is even faster. One of our natural farming friends, Shri Mohanasundaram, has started treating skin diseases with *panchagavya* with very good results. He is doing it as a free service at his farm. It can also be applied on skin lesions.

### Neurological disorders

When given to patients suffering from neurological disorders like convulsions and Parkinsonism, it helped to reduce the frequency of the attacks in convulsions and reduced shaking of the hands and head in Parkinsonism. They were able to reduce the regular medicines.

### Diabetes mellitus

When 50 ml of filtered *panchagavya* per day was taken early in the morning on an empty stomach, it reduced the blood sugar and enable the patients to reduce the dose of anti diabetic drugs. Complaints like general weakness, indigestion, constipation and burning sensation in the feet disappeared within a month. People with diabetes became active and healthy.

### Pulmonary tuberculosis

It can be given in addition to the regular anti-TB drugs. Fever disappeared within a week and cough was controlled within two weeks. Appetite improved and the patients gained body weight. The duration of anti-TB treatment was reduced by one month.

### Arthritis

It completely relieves the joint pain, swelling and stiffness. Arthritis is cured within two months. Now even healthy people take it to become more healthy and energetic.

### Amirtha sanjeevi

*Amirtha sanjeevi* is a higher form of *panchagavya* without cowdung and the smell of cow's urine. In addition to the ingredients of *panchagavya* it

contains fruit juices and herbs like *bilva,tulasi,guduchi* and *aswagandha*. It is prepared by fermentation process, like a beer.

It is effective in all human diseases except allergic skin diseases. It can be given to all age groups from childhood to old age. It balances the *pancha-boothas* and restores immunity and health. It enhances appetite, digestion, assimilation and eliminates all toxins from the body through motion and urine. It completely eliminates constipation. It improves blood circulation to all organs of the body by opening the clogged arteries, and reducing the cholesterol level in the blood.

It repairs and regenerates the damaged tissues in the body and rejuvenates the health of sick and old people. They become brisk and active throughout the day. *Amirtha sanjeevi* induces sound sleep in the night and elevates the mood during day time. It regularizes the ovulation cycle in females and increases the conception rate in infertile women. It also increases the motility and count of sperms in infertile males.

It is highly effective in Ischaernic heart disease. It can be used to avoid coronary by-pass surgeries in those patients. For those patients who have already undergone coronary by-pass surgery, it will ensure the potency of the new replaced vessels for the rest of their life.

If taken regularly, it prevents stroke and paralysis in old people. It is effective in curing convulsions and nervous weaknesses.

*Amirtha sanjeevi* alone or with drugs is very effective in curing early diagnosed cancer cases. Usually chemo therapy in cancer patients causes severe vomitting and decreases the white blood cell count. *Amirtha Sanjeevi* prevents both the above problems and enhances the efficacy of chemotherapy.

In diabetes it not only controls blood sugar but it also prevents diabetic complications like diabetic retinopathy, diabetic renal failure, diabetic neuropathy, diabetic vascular diseases and stroke.

When taken by HIV/AIDS patients, it strengthens the immunity, stops loose motions and cures oral thrush. It increases appetite, food intake and body weight. It makes such people active and normal in their pursuit of life. Even though the blood tests do not become negative, *amirtha sanjeevi* improves the health and longevity of the patients.

There is no cure for Irritable Bowel Syndrome in modern medicine. But *amirtha sanjeevi* completely cures it. It dissolves the gall bladder stones. It is effective in allergic sinusitis and bronchial asthma.

It relieves arthritis, back pain and neck pain. It reduces the weight in obese people and increases and normalises the weight in lean and weak people.

Dosage:

Adults: 15 ml along with 200 ml of water to be taken one hour before meals in the morning and evening.

Children: 5 to 10 ml, depending upon the age, mixed in 100 ml of water to be taken one hour before meals in the morning and evening.

## Herbal products for other ailments

Arthosanjeevi (arthritis)

Dried and mixed powders of the following herbs in equal quantity:

- *Cardiospermum*
- *Delonix indica*
- *Withania somnifera*
- *Phyllanthus embilica*

Dosage

Two teaspoons in a day, taken orally in the morning and evening, directly or mixed with honey. Within three months, the patients are cured.

Meharoga sanjeevi (diabetes mellitus)

The powders of the following ingredients are mixed in equal quantity:

- Gymnema leaves
- Amla fruits
- Jamun seeds
- *Tinospora cardifolia* leaves and stem bits
- *Aegle marmelos* (Bilva) leaves
- *Terminalia chebula* seeds

Dosage

Two teaspoons, once in the morning and in the evening taken orally. It reduces the blood sugar and enables the patient to reduce their regular drugs. It prevents and cures all complications of diabetes like loss of vision, renal failure, cardiac problems and neuritis.

# The curative powers of organic food

6

The five elements called '*Panchaboothas*, viz., earth, water, fire, air and space constitute 'NATURE', the mother of all worlds and living and non-living things. Since our body is made up of these five elements, it is nourished, rejuvenated and cured of diseases by these elements only.

So there is no food, no life, and no cure without these five elements. If furniture is made of wood, it is repaired with wood only. Since our body is made of *panchaboothas*, it can be cured, rejuvenated and made healthy by food grown by *panchaboothas* only.

All natural, organic foods grown with the aid of the above *panchaboothas* without using chemical fertilizers and pesticides are capable of curing all diseases. That is why our ancient rishis called food 'Annam Brahman', i.e., food is god.

Food creates life. So it is Lord Brahma. It sustains and prolongs life, so it is Lord Vishnu. It eliminates toxins and other wastes from the body, so it is Lord Shiva. Food is three in one and all gods combined and it is all-powerful with potential to cure all diseases. So there is no doubt about the curing powers of organic food.

Organic foods are grown naturally with the aid of natural inputs. So they are rich in fibres, vitamins, minerals, amino acids and other nutrients. Their keeping quality, taste, flavour are excellent. These are known facts, known to everybody.

There is another aspect, which is not known widely. It is the cosmic energy or the pranic energy or life energy of organic food, which is sathvic in nature and more potent in curing diseases and promoting a peaceful and healthy life. When the organic foods are taken without cooking in the raw natural form, they are more effective in curing all diseases and increasing longevity. For example, the tribal in the forests where food is mostly taken raw lead a healthy, disease-free long life. That is why naturopathy uses raw green leaves, herbs, vegetables and fruits in natural form or as juices to restore health and cure diseases. They use all the five elements of nature in their treatment. They use earth for mud bath and mud packing to treat skin and joint disease. They use water for footbath, hipbath and spinal bath and enema, to treat all neurological disease, and piles and constipation. They use fire in the form of sunbath using green banana leaves to cover the entire body. It effects profuse sweating to keep the skin healthy and the body toxin-free. They use air in the form of yoga, pranayama and breathing exercises to cure diseases of lungs and nerves.

Finally they use space in the form of fasting for short periods to create space in the stomach and intestine to give rest to the digestive system; to eliminate the wastes from the body; to reduce the unwanted fat and weight of the body; to promote the health of the body and peace of mind. During fasting period they use tender coconut water, herbal leaf juices and fruit juices.

From the above examples it is proven that the *panchabootha* body can be kept in a healthy and disease-free state with the aid of *panchaboothas* (five elements) above. Our ancient seers used this secret as *kayakalpa* or rejuvenation treatment to promote longevity of life. Indian systems of medicine like Ayurveda and Siddha are becoming more popular now in the West and attract medical tourism to Kerala, India.

How organic foods cure disease:

As we have already seen, organic foods are rich in nutrients and other vital elements. When you take organic food in the raw form or with mini-

mum cooking or cooking in mud pots using firewood, its nutrients are preserved with minimum loss.

All organic foods without spices and oils are alkaline in nature. All the inorganic foods and non-vegetarian foods with more spices and more cooking are acidic in nature. Since the organic alkaline foods are 'sathvic' in nature and spirit, they lead to long life. The unnatural acidic foods are rajasic and tamasic in nature, creating disturbances in the body, mind and spirit leading to diseases and short life span.

Organic foods are easy to digest and assimilate and create fewer wastes within intestines. Since the fibre content in the organic food is more, it eliminates constipation. Since constipation is the mother of all diseases, by preventing constipation most of the diseases are prevented at their initial stages.

Now we will see the case histories of patients with chronic diseases like diabetes mellitus, hypertension, coronary artery diseases of the heart, bronchid asthma, chronic headache, cancer, peptic ulcer, osteo arthritis of joints, irritable bowel syndrome, piles, back pain, insomnia, renal failure, obesity, skin diseases, allergic rhinitis, sinusitis and anemia.

**(i) Mr. Swaminathan, age 45 / M**

He came with H/O frequent urination, increased thirst, general weakness, and was losing weight. He was advised to take organic food, raw vegetables and sprouted pulses. His daily diet is very simple.

**Breakfast:**
Organic rice cooked in mud pots with boiled vegetables, sambar and butter milk

**Lunch:**
Same as for breakfast

**Dinner:**
Organically grown vegetables like carrot, beetroot, snake gourd, cabbage, ladies finger, ash gourd, bottle gourd, beans, etc., along with sprouted pulses like organic green gram, horse gram, cow pea, and chick pea (channa).

**Blood sugar:**
Before organic food with allopathic medicines:

| | | |
|---|---|---|
| Blood sugar fasting | - | 224mg |
| After food | - | 170mg |

After taking organic food for two months without taking any medicines:

| | | |
|---|---|---|
| Blood sugar fasting | – | 124mg |
| After food | - | 170mg |

After six months:

| | | |
|---|---|---|
| Blood sugar fasting | - | 77mg |
| After food | - | 120mg |

Initially he was advised to avoid fruits and sweets. After one year he started taking fruits, tea with sugar and sweets without any rise in the blood sugar. In the past five years he is following the same regime keeping his body healthy without diabetes and other diseases. He is a farmer and works hard in his farm. Ever since he started on organic food, he has not fallen ill.

**(ii) Mr. Subramanian, age 70 / M**
Profession: Businessman

He came with of loss of weight, general weakness, frequent urination and thirst. Also cough with wheezing. He was suffering from bronchid asthma from the age of 25. On examination and blood tests he was diagnosed as a case of diabetes mellitus with chromic bronchial asthma.

He was advised to take organic foods along with Bilwa leaves (*Aegin mermotos*) and *Cassia auriculata* flowers. His daily diet menu is as follows.

**6 A.M:**
Bilwa leaf juice - 200ml
20 flowers of *cassia auriculata*.

**9 A.M breakfast:**
South Indian dishes like idlies and dosas made from organic rice and black gram with sambar and boiled vegetables.

**1 P.M. lunch:**
Organic rice cooked in mud pot with sambar, boiled vegetables and greens.

**8 P.M. dinner:**
Same as for breakfast.

He was advised to avoid sugar, sweets, fruits, tubers, oil, masala and spicy foods. Within two months, his blood sugar was normal and he was relieved of his asthma without any medication. He is following the same diet without any illness. Now his physical condition is comparable to a 50 year old energetic man. Now he regularly tests his blood sugar once in a month, which is always within normal limits.

**Blood sugar:**
Before taking organic food and with medicine

Blood sugar fasting - 165mg
After food - 280mg

After taking organic foods for two months

Blood sugar fasting - 120mg
After food - 182mg

After six months:
Blood sugar Fasting - 82mg
After food - 146mg

After one year of organic food, he was able to take sweets and fruits without any rise in his blood sugar.

How did this happen?

The secret is in the natural food and herbal juices. They rejuvenated his pancreas to the normal state with healthy beta cells to secrete required insulin

How was his asthma cured?

The organic foods and herbal juices eliminated all toxins and allergens in the body and lungs. Since his changed food habits stopped adding toxins and accumulating them in the body, he continues to be free of asthma and diabetes till today.

**(iii) Mrs. & Mr. Anthony samy, age - 72**

Profession: Organic farmers

The couple had diabetes for 25 years. Fifteen years ago, his wife developed diabetic gangrene of the foot due to uncontrolled blood sugar. After heavy expenses and long treatment her foot was saved. But she became very weak after that ailment.

At that time, he came to know about organic farming. Because of the intensive chemical farming on his 150-acre large farm and due to uneconomical prices for his produce realized in the market, he incurred heavy losses and had a bank loan of Rs.56 lakh. The health and economic status of his family degenerated.

At this stage, he turned towards organic farming. He stopped using chemical fertilizers and pesticides on his farm. He prepared his own organic fertilizers like organic compost, vermi compost, *panchagavya* and herbal pest repellents from cowdung, cow's urine and herbal leaves available on his own farm. This reduced his input cost to a great extent, enhanced the fertility and health of the soil. The depressed yields after prolonged and heavy use of chemical fertilizers and pesticides, started to reverse gradually and within three years, yields became abundant and surpassed those of chemical farmers.

His economic condition also improved and within 10 years, he repaid the entire bank loan of Rs.56 lakh with interest. After becoming an organic producer, he started using organic food for his family. This improved the health of the family and their blood sugar levels started coming down. Within 2 years, they were able to stop all drugs and now they are free of loans, drugs and disease. Now he cultivates paddy, sugarcane, banana, lemon, amla, guava and other cereals and oilseed crops.

**6 A.M:**
Fresh amla juice and aloe vera juice.

**9 A.M:**
Boiled organic vegetables, greens, idlies or dosas with sambar.

**1 P.M lunch:**
Cooked organic vegetable, greens, rice, pulses, sambar, rasam and buttermilk.

**8 P.M dinner:**
Idlies, dosas or ragi or wheat rotis with lots of vegetables

Now he is a rich, healthy organic farmer. Agricultural scientists, organic farmers, higher officials and social workers regularly visit his model organic farm. Now he teaches and trains other farmers in organic farming methods and organic food habits.

# 7 Other useful natural products

***Amirtha*** solution

This can be used as a starter solution.

Ingredients

| | |
|---|---|
| Fresh cow dung | 10 kg |
| Fresh cow urine | 10 litres |
| Jaggery | 1 kg |
| Water | 100 litres |

Mix the above ingredients in a cement tank or plastic container and stir twice daily. The fermented solution will be ready for use after 24 hours.

Usage

Ten percent solution can be used as a soil booster by flow irrigation and the same as foliar spray for all crops, once in 15 days to one month.

Requirement

| | |
|---|---|
| Flow irrigation | 200 litres / acre |
| Foliar spray | 10 litres / acre |

Special features

- Enriches even degraded soil with micronutrients and humus
- Increases soil microbes and earthworm population
- Enriches the aeration of the soil
- Plants grow faster with deep and dense roots
- Acts as a growth promoter and increases the yield
- Easy and economical to prepare

## Butter milk and coconut milk

Preparation

Take five litres of buttermilk and five litres of coconut milk in a mud pot and carefully place the mud pot inside the cowdung heap or compost heap. The heat inside the cowdung heap will accelerate the fermentation of the solution and the solution will be ready for use after one week.

Usage

Ten percent solution as foliar spray once in 15 days to one month.

Requirement

10 litres / acre

Special features

- Acts as a plant growth promoter
- Increases yield
- Homemade and hence cheap

## Butter milk + *Albizzia amara* leaf powder

Preparation

Take 10 kg of *Albizzia amara* powder (traditionally used like the soap nut powder during oil bath) and 10 litres of butter milk in a mud pot and carefully place it inside the cowdung heap for one week. Then the solution is ready for use.

Usage

Ten percent solution as foliar spray once in 15 days to one month.

Requirement

10 litres per acre

Special features

- Acts as a plant growth promoter
- Increases yield
- Homemade and hence cheap

## Bio-pesticide / pest repellent in cow urine

In nature, there are only two types of insects: 1) Herbivorous insects that eat the plants which are harmful and cause economic loss to the farmers; 2) Carnivorous insects that eat the other herbivorous insects and benefit the farmers by reducing the pest damage to the crops. The number of species and the population of the latter is more in nature than the first one. In the name of killing pests by using chemical pesticides, we should not eliminate the beneficial insects.

In organic farming, our aim is not to kill every insect, but to repel them from our plants. What is the principle of selecting the herbs or plants for the preparation of bio-pesticide or repellent?

- One simple criteria is that all plants which are not browsed or eaten by cattle
- All plants which are bitter in taste
- All plants with bad odour
- All the plants with latex
- All the plants which are poisonous

## Mode of action

Generally, insects and worms identify plants by the odour released by the leaves and flowers. Since the bio-pest repellent emits a very bad odour, the pests are driven away from the field. Because of the bitter taste, the worms are not able to eat the plants. Even if they eat, their digestive system is affected and they die. If they don't eat, they are starved to death. Some neuro-poisons like nicotine in tobacco and strychnine in Nux vomica paral-

yse the worms. Their mastication and movement are affected and they die a natural death or are eaten away by birds and ants. Their population is further reduced by interruption of ovulation, hatching of eggs and moulding of pupa. In natural farming, the population of beneficial insects and birds becomes abundant and they take care of the harmful pests eating them.

INGREDIENTS:

- Leaves of *Vitex negundo*
- Leaves of *clerodendran inerme*
- Leaves of *Calotropis gigantia*
- Leaves of *Aloe vera*
- Leaves of *Azadiracta indica*
- Leaves of *Adathoda vasica*
- Leaves of *Jatropa curcus*
- Leaves and seeds of *Pongamia*
- Leaves and seeds of *Oleander*
- Leaves and unripe fruits of *Nux vomica*
- Leaves and unripe fruits of *Annona squamosa*
- Leaves of papaya
- Leaf powder of tobacco
- Leaves of *Lantana camera*
- Leaves of *Aegle marmelose*
- All parts of *Cissus quadrangularis*
- Turmeric powder

Preparation

Select a minimum of ten ingredients available in your area and two kg of each ingredient are pounded in a mortar and mixed with 30 litres of cow urine and two kg of cow dung in a non metallic vessel. It should be stirred twice a day and allowed to ferment for 10 to 15 days. Then the solution should be filtered and used as foliar spray.

The other method for immediate use in emergencies is to take the same quantity of ingredients as mentioned above and mix them in 30 litres of

water and boil the contents in a metallic vessel or mud pot for three hours. After cooling it, add two kg of turmeric powder and keep it for 12 hours. After filtering, the solution is ready for use as a foliar spray.

Usage

5 % to 10 % of the solution mixed with water can be used as a foliar spray to control all type of pests.

Special features

- Natural and does not pollute the environment.
- It has a proven effect on control of pests and diseases of rice, turmeric, onion, sugarcane, cotton, vegetables, fruit crops, flower crops like jasmine and roses.
- It does not cause any residual toxicity.
- It is simple to prepare the solution and spray.
- Cost effective.
- It has 75% pesticidal action and 25% growth promotion action.

# About the author

Dr. K. Natarajan, a practicing physician, was born into a farming family in 1949 at Pappavalasu, a hamlet near Kodumudi, Erode district, Tamil Nadu. He graduated from the Thanjavur Medical College in 1973 and began to practise medicine at the R. S. Hospital, Kodumudi.

Over the years, Dr. Natarajan became conscious of the fact that many ailments affecting humanity were caused due to the consumption of food stuffs with heavy toxic content as a result of the extensive use of chemical fertilizers and pesticides in agriculture. This led him to advocate organic farming for growing toxin- free foods.

Dr. Natarajan later founded the Rural Community Action Centre (RCAC) to spread the message of organic, toxin-free food crop production. One of the activities of RCAC is to popularize *panchagavya*. Since the time it has been developed, *panchagavya* has produced fantastic results in boosting agricultural production and protecting crops from disease and pests. It has succeeded in revolutionizing the practice of organic farming and animal husbandry. *Panchagavya* has also proved to be highly efficacious as a medicine for human as well as animal ailments. Dr. Natarajan has also formulated other useful herbal medicines and pesticides.

Organic farmers have started finding more and more uses for *panchagavya*, thus becoming natural scientists themselves. Now even agricultural sci-

entists, veterinary doctors and human doctors have started evincing interest in its properties.

RCAC plans to work on the following issues with the active involvement of farmers, to further improve and popularize *panchagavya*:

- To establish the cosmic relevance of *panchagavya* to biological processes in humans, animals and plants.
- To standardize the preservation technology for mass production and storage of *panchagavya*.
- To containerize *panchagavya* for long distance transport.
- To further investigate the influence of *panchagavya* on the health of farm workers and animals.
- To investigate the efficacy of *panchagavya* in AIDS/HIV therapy.
- To study the impact of both lunar and solar phases for production of *panchagavya*.
- To identify the particular breed of cow to maximize the efficacy of *panchagavya*.
- To develop a protocol with *panchagavya* to help reduce infertility in humans and animals.

Those who wish to contact Dr. K. Natarajan may do so at the following address:

**Dr. K. Natarajan, President,**
Rural Community Action Center (RCAC),
R.S. Hospital, Bye Pass Road,
KODUMUDI – 638151, T.N., INDIA,
Ph: 04204 – 222369, 222469
E-mail: rcacngo1948@gmail.com

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*Dr K Natarajan who invented the popular versions of panchagavya and declared the recipe public knowledge, stands next to a productive mango tree fed with panchagavya solution.*

*Sugarcane with application of panchagavya. Farmers report as good, if not better, production. In all cases, farmers growing sugarcane absolutely stop use of chemical fertilisers and pesticides. They also go in for ratoon crops and refuse to burn sugarcane waste in their fields.*

*An organic farmer proudly displays tapioca roots dug from a tapioca field irrigated with only panchagavya solution.*

*Turmeric, like tapioca, is a root crop and responds well to the application of panchagayva. After harvests like these, no farmer will return to the use of chemicals.*

*Panchagavya is also used for ordinary kitchen vegetable gardens like brinjal for getting better and healthier fruit*

*Unlike in the case of crops grown with chemical fertilisers, each of the rice spikelets is filled with grain in panchagavya fertilised fields.*

*The size and length of drumsticks from a drumstick tree fertilised with panchagavya solution is twice that obtained from normal Moringa trees.*

*Here a mango tree bursts into blossom after regular application of panchagavya sprays*

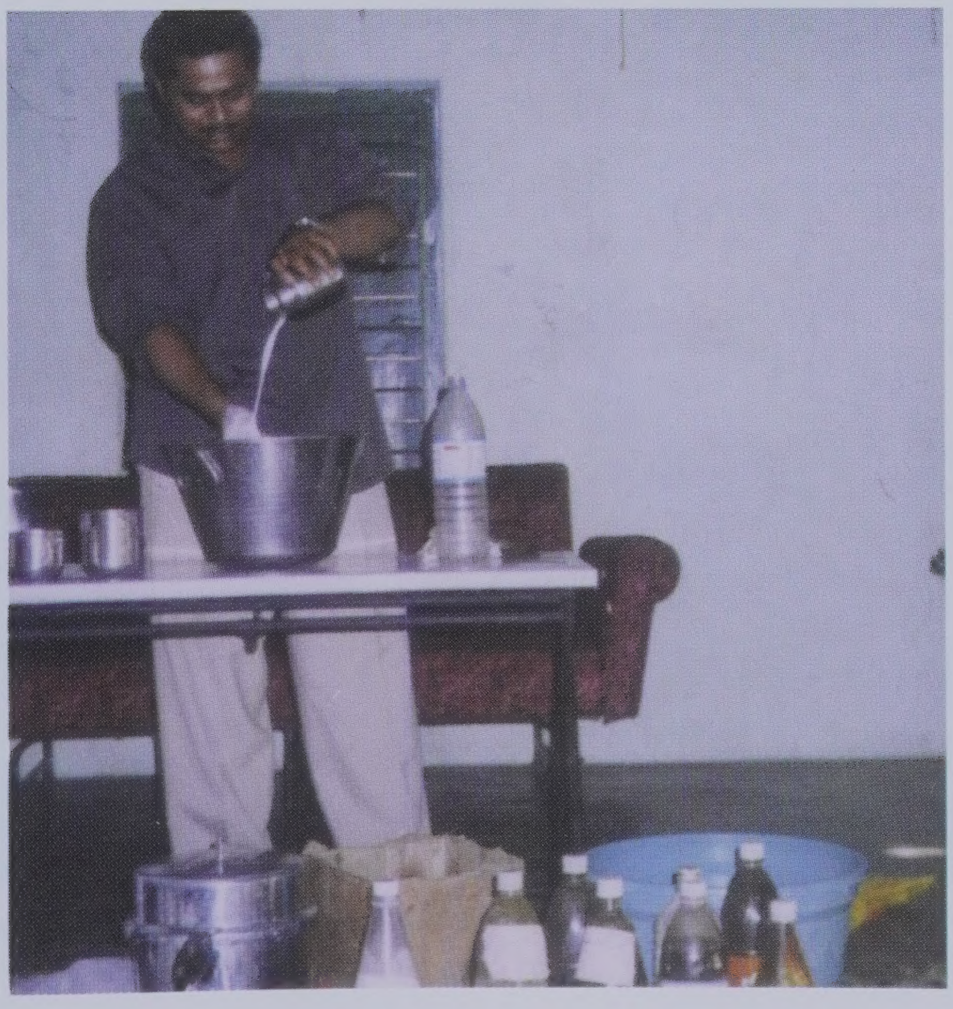
*Earthworms multiply in huge quantities with the application of panchagavya. This is because they have a special fondness for cowdung.*

*Regular miscarriage affecting goats was cured by the administration of panchagavya.*

*An animal with stunted growth began to improve after it was administered panchagavya in regular doses.*

*Animals that are unable to conceive (called 'repeaters', as they keep repeating their cycles without getting pregnant) are successful once administered panchagavya*

*The banana plant responds well to panchagavya fertiliser. In addition, farmers administer panchagavya through a pouch to the navel of the bunch after the flower is excised*



*Panchagavya solution is easy to prepare. All the required ingredients are available on the farm. Unlike other microbial solutions, panchagavya does not demand sterilised water for the preparation of the solution.*

*Bananas from a plantation fed exclusively with panchagavya solution in the irrigation water. Farmers like the one above have completely stopped using chemical fertilisers.*

*Even children take to preparation of panchagayva with pleasure. The solution must be stirred at least once a day, so the whole family often joins in.*

# Panchagavya

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